



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/033,162	10/24/2001	Diane M. Landers	DP-304139	7176
22851	7590	03/22/2006	EXAMINER	
DELPHI TECHNOLOGIES, INC.			BAHTA, KIDEST	
M/C 480-410-202			ART UNIT	
PO BOX 5052			PAPER NUMBER	
TROY, MI 48007			2125	

DATE MAILED: 03/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/033,162

Applicant(s)

LANDERS ET AL.

Examiner

Kidest Bahta

Art Unit

2125

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-145 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-145 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>2/22/05; 09/17/03</u> . | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 112

1. 112 Rejection withdrawn due to the amendment.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-145 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Pat. No. 6,735,489 to Khurana.

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1. 132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another" or by an appropriate showing under 37 CFR 1. 13 1.

Referring to claims 1, 31, 68, 108, 117, 127, 140-145, Khurana clearly teaches a method, system, part, and computer program of horizontally structured CAD/CAM manufacturing (Title, Abstract), comprising: selecting a blank for machining into an actual part (Col. 6, lines 32-37), establishing a coordinate system (Col. 2, lines 26-36, Col. 9, claim 4), creating a master process model (Col. 7, Col. 8, line 52) comprising a

Art Unit: 2125

virtual blank corresponding to said blank (Col. 8, lines 31-41), a manufacturing feature (Fig. 5), virtual machining of said manufacturing feature into said virtual blank (Col. 8, lines 31-41), said manufacturing feature exhibiting an associative relationship with said coordinate system (Fig. 5), and generating machining instruction to create said actual part by machining said manufacturing feature into said blank (Abstract; Col. 8, lines 61-64); an extracted 3-D model, the extracted 3-D model from the master process model (abstract); a manufacturing feature for alternate operations; virtual machining of said manufacturing feature for alternate operations into said extracted 3-D model; said manufacturing feature for alternate operations exhibiting another associative relationship with said coordinate system; said generating said alternate master process model following said virtual machining of said master process model; generating machining instructions to create said actual part by machining said manufacturing feature for alternate operations into said blank (See figures 1-6, Col. 2, lines 7-65, Col. 8, lines 1-41, Col. 8, lines 50-67, Col. 9, line 1 - Col. 10, line 17).

Referring to claims 2-30, 32-67, 69-107, 109-126, 128-139, Khurana teaches the above, wherein said associative relationship is a parent/child relationship, further including said manufacturing feature exhibiting an associative relationship with another said manufacturing feature, wherein said virtual blank exhibits an associative relationship with another said manufacturing feature or said coordinate system, further comprising creating extracts from said master product and process model, wherein said extracts comprise replicated models of said master product and process model at various operations of said manufacturing, teaches the above, wherein said virtual blank

is positioned and oriented relative to said coordinate system, wherein said virtual blank is generated as a three dimensional parametric solid model from a reference set geometry, wherein said reference set geometry is defined by dimensional characteristics of a modeled part, wherein establishing said coordinate system comprises one or more datum planes, wherein said coordinate system comprises'.

creating a first datum plane positioned and oriented relative to a reference, creating a second datum plane positioned and oriented relative to said reference; and creating a third datum plane positioned and oriented relative to said reference, wherein said first datum plane, said second datum plane, and said third datum plane are orthogonal, and generating machining instructions to create said actual part by machining manufacturing features into a blank, wherein creating extracts from a master product and process model, wherein said extracts are used to generate manufacturing process sheets, wherein said product drawings include an associative relationship with said master product and process concurrent model, wherein the master product and process concurrent model links to a process planning system, wherein said process planning system comprises automated creation of a manufacturing process plan (See figures 1-6,. Col. 2, lines 7-65,. Col. 8, lines1-41, Col. 8, lines 50-67, Col. 9, line 1 - Col. 10, line 17).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 2125

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-145 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 6,629,065 to Gadh (supplied by applicant) in view of U.S. Pat. No. 4,928,221 to Belkhiter.

Claims 1-145 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 6,629,065 to Gadh in view of U.S. Pat. No. 6,430,455 to Rebello (supplied by applicant).

Referring to claims 1, 31, 68, 108, 117, 127, 140-145, Gadh clearly teaches a method, system, part, and computer program of horizontally structured CAD/CAM manufacturing for concurrent product and process design (Fig. 55A and 558, Col. 36, lines 28-39, Col. 8, lines 5-24), comprising: selecting a blank for machining into an actual part establishing a coordinate system (Figs. 10A- 10C) and corresponding description, i.e., "rubber-banding"); creating a master product and process concurrent model (Co1. 10, lines 22-58) comprising: a virtual blank corresponding to said blank (Fig. 55A element b1); a manufacturing feature (Fig. 55A any of elements nw or nb); virtual machining of said manufacturing feature into said virtual blank (See Fig. 55A and Col. 36, lines 28-39), said manufacturing feature exhibiting an associative relationship with said coordinate system (See Fig. 25A-25D, Col. 24, lines 6-32); an extracted 3-D model, extracted 3-D model from the master process model (Fig. ; a manufacturing feature for alternate operations', virtual machining of said manufacturing feature for alternate operations into said extracted 3-D model; said manufacturing feature for alternate operations exhibiting another associative relationship with said coordinate system; said

Art Unit: 2125

generating said alternate master process model following said virtual machining of said master process model; generating machining instructions to create said actual part by machining said manufacturing feature for alternate operations into said blank (See figures 1-6,. Col. 2, lines 7-65, Col. 8, lines 11-41, Col. 8, lines 50-67, Col. 9, line 1 - Col. 10, line 17).

Gadh clearly teaches a design intent graph (D) used to create a design and record the specified design constraints to be used in future design activities. Clearly, D refers to the intended/desired geometric relations between the models features (Co1. 20, lines 56-65). Gadh clearly teaches exemplary embodiments of a machined part constructed in VDSF" with its corresponding D (Co1. 36, lines 28-34, see Fig. 55 A &B).

Clearly, the D depicted above, is horizontally structured. The virtual blank is element b1, and a manufacturing feature could clearly be any of nw or nb with exclusive relationships to b1. Gadh clearly teaches elements as add-ins, wherein, as mentioned above, the figures depict 'Ta machined part constructed in VDSF"; Gadh clearly shows the manufacturing features on a grid coordinate system.

Furthermore, Gadh clearly teaches a child element (which can clearly be interpreted, without question, as any of the nw or nb elements) has an associative relationship with the coordinate system. The VDSF display viewed by the user is considered as having a right-left/top-bottom/front-rear coordinate system, whereby the user issues intuitive commands for a user-viewpoint-dependent method of alignment of said child element. And, Gadh also clearly teaches that VDSF determines the XYZ coordinate axes when a viewpoint-dependent alignment command is issued (Col. 24,

lines 6-32). Furthermore, Gadh teaches the representation can be implemented in any conventional ZD-CAD systems or VR-CAD systems utilizing VE (Col. 39, lines 33-44). Examiner respectfully submits that "associative relationship" requires no further explanation and that it will be given its plain meaning as required by MPEP 2111.01. Webster's Dictionary defines associative as "of, or relating to, in association with" while relationship as "a state or character of being related . . . a natural or logical association between two or more things, connection."

Referring to claims 2-30, 32-67, 69-107, 109-126, 128-139, Gadh teaches the above, wherein said associative relationship is a parent/child relationship (Col. 24, lines 6-32, Col. 40, lines 14- 57), further including said manufacturing feature exhibiting an associative relationship with another said manufacturing feature (Fig. 55A), wherein said virtual blank exhibits an associative relationship with another said manufacturing feature or said coordinate system (Fig. 55A), Gadh teaches the above, further comprising creating extracts from said master product and process model, wherein said extracts comprise replicated models of said master product and process model at various operations of said manufacturing (Fig. 55C, Col. 10, line 54- Col. 11, line 7), Gadh teaches the above, wherein said virtual blank is positioned and oriented relative to said coordinate system, wherein said virtual blank is generated as a three dimensional parametric solid model from a reference set geometry wherein said reference set geometry is defined by dimensional characteristics of a modeled part, wherein establishing said coordinate system comprises one or more datum planes, wherein said coordinate system comprises; creating a first datum plane positioned and oriented

relative to a reference, creating a second datum plane positioned and oriented relative to said reference; and creating a third datum plane positioned and oriented relative to said reference, wherein said first datum plane, said second datum plane, and said third datum plane are orthogonal (Figs. 25A-D and 55A).

While Gadh clearly teaches creating a model and constructing a part in the VDSF, Gadh fails to provide for generating machining instructions to create the actual part by machining the manufacturing feature into the blank. While the instant claims call for horizontally structured CAD/CAM manufacturing, as presented by Gadh above, the instant specification appears to describe this horizontal structure with respect to the establishment of relationships that are taught as both horizontal and vertical (See page 4-5 and 9- 10 of the instant specification). Therefore, even though the examiner interprets the claims to require at least a horizontally structured relationship in the preamble, the claims do not required any of the limitations in the body of the claims to have such a horizontal structure, exclusive, or non-exclusive CAD/CAM relationship. Namely, the claims do not require a horizontally structured CAD/CAM relationship with respect to generating machining instructions to create the actual part by machining the manufacturing feature into the blank. Furthermore, the recitation "horizontally structure CAD/CAM manufacturing" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See In re

Hirao, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and Kropa v. Robie, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Clearly, the body of the claims does not depend on the preamble for completeness; in fact, applicant has admitted that the intended use of the horizontal structure is not limited by non-verticality (See pages 4-5 of the instant specification).

The claims, as such, do not require any functional relationship between the limitation of an associative relationship and the limitation of generating machining instructions to create the actual part by machining the manufacturing feature into the blank. Furthermore, neither the part nor blank are required to be the product.

In view of the above, the examiner respectfully submits that patentability resides in the determination of non-obviousness with respect to generating machining instructions to create the actual part by machining, in real life, the manufacturing feature into the blank. The examiner respectfully submits that generating machining instructions to create the actual part by machining, in real life, a manufacturing feature, into a blank, is commonly known in the art, and therefore, the examiner is unable to make said determination of non-obviousness at this time.

The examiner believes these limitations are clearly taught by any of the prior art references of Belkhiter or Rebello.

Referring to claims 1-145, Belkhiter clearly teaches analogous art, wherein a conventional CAD/CAM system is used to produce a part drawing (Col. 2, lines 53-66 of '221) and then generating machining instructions to create said actual part by machining manufacturing features into a blank (See Cols. 7-8, table 2, Col. 1, lines 6-14 of 622 1),

wherein creating extracts from a master product and process model, wherein said extracts are used to generate manufacturing process sheets, wherein said product drawings include an associative relationship with said master product and process concurrent model (Col. 14, lines 6-11 of '221).

Referring to claims 1-145, Rebello clearly teaches analogous art wherein figure 2 clearly shows the processing architecture of the CAD/CAM system, wherein the processor uses a data extractor and populate to populate the extracted data in drawing files and NC machining data files (Col. 3, lines 18-32 of .455), if the drawings and NC machining data are satisfactory, the designer releases them to manufacturing for production of the part (Col. 1, lines 10-18 of .455), wherein creating extracts from a master product and process model (Col. 4, line 63 - Col. 5, line 6 of :455), wherein said extracts are used to generate manufacturing process sheets (Col. 7, claim 19, Col. 2, lines 39-64, Fig. 3, element 26 of :455), wherein said product drawings include an associative relationship with said master product and process concurrent model (Col. 3, lines 5-17, Col. 6, lines 13-17 of (455).

Therefore, it would have been obvious to one of ordinary skill in the art at the time that the invention was made to combine the teachings of either Belkhiter or Rebello with the teachings of Gadh.

One of ordinary skill in the art would have been motivated to combine Belkhiter with Gadh because Belkhiter teaches a part program suitable for machining a part from a drawing without the need for human intervention. Furthermore, Belkhiter teaches a system that reduces lead-time between the request for a part and the machining of a

Art Unit: 2125

pm. Further still, Belkhiter teaches a system that reduces manpower costs (Co1. 1, line 62 - Col. 2, line 2 of '221).

One of ordinary skill in the art would have been motivated to combine Rebello with Gadh because Rebello teaches a system and method for managing files of a product in a design and manufacturing environment wherein costly mistakes are avoided and time to bring the product to market is reduced. Other advantages include discovery of inconsistencies, the ability to incorporate agility and concurrent engineering into design processes and divide roles across and between organizational structures quickly and efficiently (Co1. 5, lines 37-46 of '455).

Double Patenting

6. Double Patenting rejection withdrawn due to the amendment.

Response to Arguments

7. Applicant's arguments filed 1/18/06 have been fully considered but they are not persuasive.

Regarding claims 1, 31, 68, 108, 127, 140-145, Applicant argues that Khurana does not disclose an extracted 3-D model, the extracted 3-D model from the master process model. However, Examiner disagrees because Khurana discloses that an extracted 3-D model, the extracted 3-D model from the master process model (abstract, i.e., Extracts are then made of the master process model . . .). In addition, applicant argues that Gadh does not disclose an extracted 3-D model, the extracted 3-D model

from the master process model. However, Examiner disagrees because Gadh discloses an extracted 3-D model, the extracted 3-D model from the master process model (Fig. 5A-5C).

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed Kidest Bahta whose telephone number is 571-272-3737. The examiner can normally be reached on Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on 571-272-3749. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2125

Information regarding the status of an application may be obtained from the Patent Application information Retrieval IPAIRI system. Status information for published applications may be obtained from either Private PMR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAG system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kideest Bahta


Primary Examiner

AU 2125

March 16, 2006